



CHAPTER

FLIGHT SCHOOL SETUP

1



"[THE AIRPLANE] DOES NOT ISOLATE MAN FROM THE GREAT PROBLEMS OF NATURE BUT PLUNGES HIM MORE DEEPLY INTO THEM."

—ANTOINE DE SAINT-EXUPÉRY

"SPEED IS LIFE."

—ISRAELI AIR-TACTICS MANUAL

INSTALLING FSX

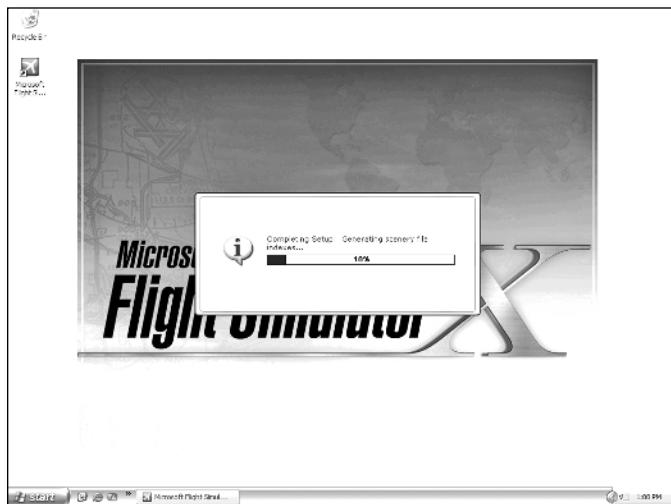


Figure 1-1: Even on a ripping-fast computer system, you'll see quite a bit of this progress bar as a flight loads.

the fun out of your virtual flying. We'll talk about customizing your performance settings and why you might want to do this later in this chapter (see "Getting the Right Hardware") and also in Appendix C.

Installing Flight Simulator (FSX) is rather painless, other than that it takes a long time. It also takes up almost 13GB of disk space. (That's not a typo. It's 13 not 1.3.) When you run FSX for the first time, it will take some additional time to configure itself. During this process, FSX will figure out the best display settings to give you a balance between visual performance—how smoothly the airplane appears to fly—and visual quality.

FSX does a pretty good job in striking the right balance, assuming your computer system is fairly high-end. That might be a big assumption, but the truth is if you want Flight Simulator to accurately represent a real-world airplane, you need to invest in a fairly decent system to run it. FSX will run on older systems, but the frustration of waiting for it to load (Figure 1-1) each time you want to fly and having a rather cartoonish-looking airplane might take much of

LOOKING AT WHAT'S NEW IN FSX



Figure 1-2: The view from the tower is new.

When FSX finishes all its start-up duties, you'll be at the Learning Center and the Getting Started page. The three huge buttons correspond to three promo movies, which are actually fun to watch if you have some time. One of these movies gives you a rundown of what's new in this version of Flight Simulator. We'll save you the trouble and let you know the key differences right here:

- The video quality of the world overall has increased immensely—if your computer is capable of showing it. FSX has a potential increase in scenery resolution 16 times that of Flight Simulator 2004. Figure 1-2 shows the amazing view from the tower.

- FSX has enhanced the mission concept (common in Combat Flight Simulator and familiar if you know much older versions of Flight Simulator). These are scenarios that you fly for the fun challenge of it and earn rewards, which are stored along with your pilot logbook.

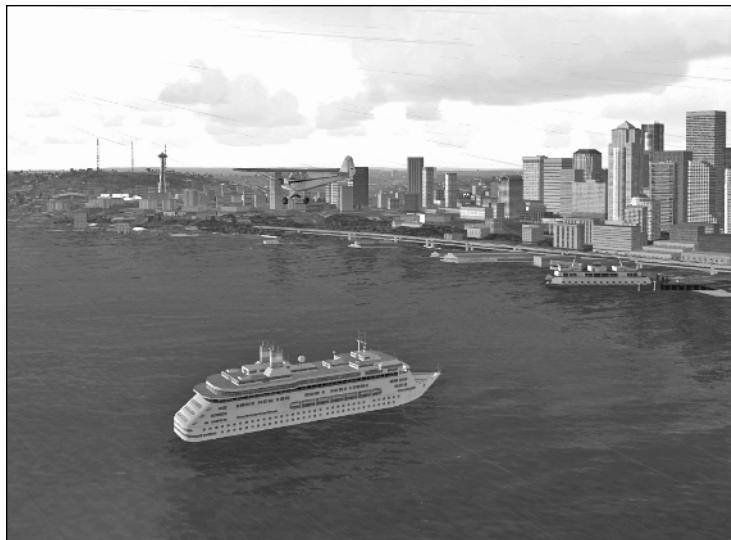


Figure 1-3: If your computer can handle it, you can see photorealistic clouds, birds, and ferries (which run on real schedules across the sound).

- The number and variety of dynamic objects, such as other airplanes, ground vehicles, and even birds, have increased. The detail is astounding: ferries in Washington's Puget Sound even run on the appropriate schedules (see Figure 1-3).
- The multiplayer function of Flight Simulator has been completely re-worked and now not only allows virtual pilots and virtual air traffic controllers to work together but also allows two pilots to share the same cockpit. A shared cockpit has displaced the instructor station, however.
- The air traffic control options have expanded and now include the ability to have air traffic controllers in a tower (see Figure 1-2 earlier).

- Several miscellaneous enhancements have also been made, including more camera angles and views and more intuitive user settings.

The increase in potential video quality is also an issue in that, as you use Flight Simulator, sometimes you'll want excellent visuals at the expense of smooth video motion on the screen. Other times, you'll want fluid motion on the screen and have to put up with a fairly rudimentary-looking airplane. To make this compromise as little as possible, we'll now cover what kind of hardware it takes to really run Flight Simulator.

GETTING THE RIGHT HARDWARE

How powerful a computer do you need for FSX? Here's the quick answer: get the fastest processor with the most memory and the best video card you can afford.

We're only half joking. We talked with Hal Byran, whose official title at Microsoft is Flight Simulator Evangelist. Hal told us that FSX was designed to outstrip even the fastest home computers available today. A new version of Flight Simulator releases only once every three years. FSX is designed to still offer something new to the top-end

computer released three years after FSX ships. So don't feel bad if your new computer just can't handle FSX running at its ultrahigh simulation level.

Since we're hoping this book will be around three years from now as well, we wanted to develop this text and capture footage that was as high quality as possible. Two companies stepped up to the plate and loaned us some of their top computers. For this book, Jeff used an Area-51 7500 from Alienware computing and Kevin used an IX2 SLI from WidowPC to get the most from FSX and to capture the best visuals possible.

That said, we also have FSX running on our older machines. These are 2GHz systems with 512MB of RAM and video cards that were a year old when Flight Simulator 2004 hit the shelves. The new FSX runs on these systems, but it takes some tweaking to get it just right. We'll give you a quick primer in the following sections of generally what makes FSX sing or croak, but if you want details of maximizing the potential of your personal system, see Appendix C, on the book's website.

PROCESSOR, MEMORY, VIDEO CARDS



Figure 1-4: The Area-51 7500 was one of the fastest available from Alienware when we tested FSX—but FSX performs even better as computers get faster.

to less than 20 (see “What the Heck Is Frame Rate?” sidebar), we had to go deep into the custom settings and create an ultrareal world.

Processor speed, RAM, and video card power are the big three for making FSX really sing. Microsoft publishes the minimum requirements, but this is like saying that a Cessna 172 is a four-place airplane. (Putting four people in a Cessna 172 requires some really skinny people and means leaving so much fuel behind you could fly for about only two hours.) Technically, you can run FSX on the minimum system, but it will take so long to load, look so cartoonish, and have motion that appears so jerky that you'll abandon the effort of using it for training. The following are the minimum requirements, according to Microsoft:

- *Processor: 1.0GHz*
- *RAM: 256MB (512MB for Windows Vista)*
- *Video card: 32MB DirectX 9 compatible*

In our opinion, twice as much computer in all categories—2.0GHz, 512MB RAM, and a 64MB video card—is really the minimum for using FSX. Running FSX on our loaner computers absolutely rocks (see Figure 1-4). In fact, to get the frame rate

Here's our setup for the Alienware Area-51 7500:

- *Processor*: Core Duo of 2.93GHz each
- *RAM*: 2GB
- *Video card*: Dual 512MB NVIDIA GeForce 7900 GTX

Here's our setup for the WidowPC IX2 SLI:

- *Processor*: Core Duo of 2.4GHz each
- *RAM*: 2GB
- *Video card*: Dual 1GB NVIDIA GeForce 7950 GX2

The other feature both of these computers have is a RAID hard drive that runs at 7200 rpm. This hard drive is actually two fast hard drives working together. This doesn't only have a moderate effect on the actual simulation, but it also makes the program boot up each flight a whole lot faster.

MONITORS

Almost any monitor will work just fine with FSX. The only real catch is that LCD monitors usually look sharp at only one screen resolution. For example, most 19-inch LCD monitors work best at 1280 × 1024 pixels. Your computer might not be powerful enough to drive a screen resolution this high at a respectable frame rate. If you try to drop your resolution to something lower such as 1024 × 768, the motion will be fluid, but the picture will be fuzzy.

To get around this problem, check your display settings. On the Settings tab, you'll usually see an Advanced button that will open the software specific to your video card. Many allow a lower-resolution screen to be displayed centered on the LCD monitor rather than stretched to fill the whole screen. This lets FSX run at a lower resolution—and provide better performance—but lets it still keep a crystal-clear image. CRT monitors don't have this problem.

On the other end of the spectrum, FSX supports multiple monitors. This means you can keep one monitor for flying and one for other items such as your radios or moving map. This isn't essential for training purposes, but it sure is cool. It will cause choppy, unrealistic simulation on less powerful machines, however.

FLIGHT CONTROLS AND HEADSETS

You'll want to invest in a decent yoke and throttle quadrant or joystick. The yoke is more realistic for most of the airplanes in FSX. Yokes also tend to offer more buttons for customization; switches for flaps and gear; and separate throttle, mixture, and propeller controls. Jeff likes his CH Products flight simulator yoke because the controls are rather airplanelike, and it clamps and unclamps easily onto his desk. A joystick might be a better choice if you plan to do a lot of Cub flying or aerobatics in the Extra 300.

We strongly urge getting a separate set of rudder pedals. Even though many joysticks have a twist feature that can be used for rudder control, this is nothing like what we use in real airplanes. Real pedals are almost a must for slips or serious aerobatic maneuvers. They also have brakes, which frees up one more button on your yoke or joystick. CH Products make a great set of rudder pedals as well.

To use a shared cockpit or ATC features, you'll also want a comfortable headset with noise-canceling microphone. We found a perfectly serviceable headset at RadioShack for less than \$25. You can also install a second sound card to handle voice communication for the built-in air traffic control (see Chapter 4) and multiplayer (see Chapter 25). You don't need to get top-of-the-line items for any of these—we certainly don't have them—but you'll want to invest a little bit in something comfortable, or you'll just be frustrated trying to make FSX work well.

ADJUSTING PERFORMANCE SETTINGS

Because the realism setting is more a function of actually flying the airplane, we'll talk about that in Chapter 2 when you climb into the virtual Cub. As we said earlier, though, you might want to have different settings for different missions. To see the settings that FSX decided was the best compromise for your computer, click the Settings link on the left side of the home screen. This opens the basic Settings page shown on the left of Figure 1-5.

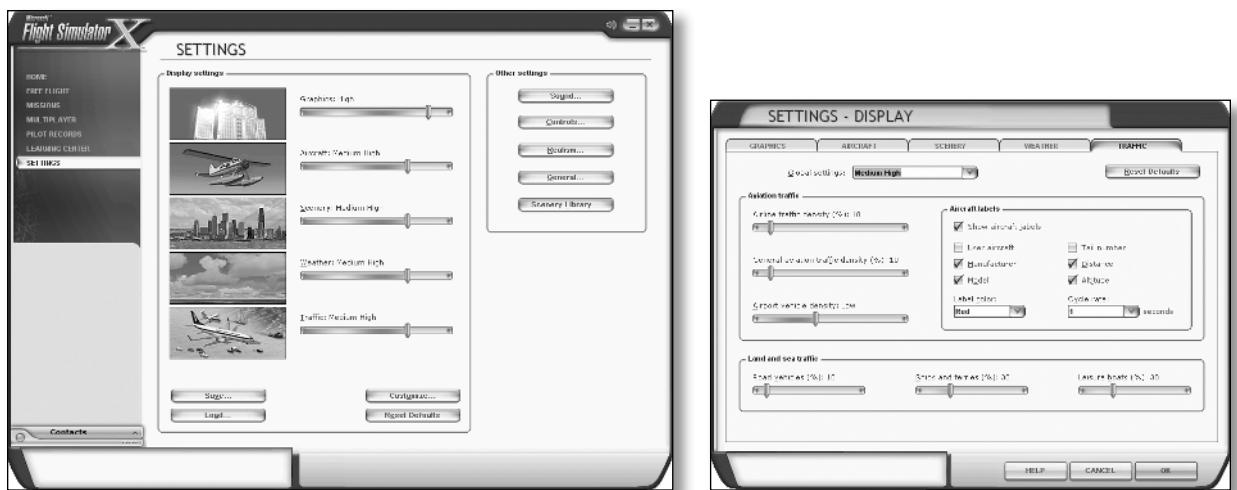


Figure 1-5: The display settings have both a simple mode, allowing you to make an overall adjustment, and a customize mode, allowing you to tweak virtually every setting in the virtual world.

The Settings page controls all FSX settings, but you'll see right away that the lion's share are display settings. This makes sense because the display takes up the bulk of the computer's processing power. You'll see five basic sliders for display settings, as well as a Customize button. If you click the Customize button, you can customize the details for each of these five areas, as shown on the right of Figure 1.5. This is far more detail than you'll ever need to adjust for flight training, but it does allow you to customize FSX's look to your personal tastes.



KEEPING IT REAL

WHAT THE HECK IS FRAME RATE?



Frame rate refers to how fast FSX can draw a completely new picture on your screen. If you think about Flight Simulator as a movie, the faster the frame rate, the smoother the movie appears on your screen. To see the frame rate you're getting at any given time, press Shift+Z twice on your keyboard. The target frame rate for FSX is usually 20 frames per second (fps). The biggest frame rate killers are textures, including both the textures on your aircraft and the texture of the earth below you.

Feel free to play around with display settings to get the best look possible. Just remember that, as far as flight training goes, a consistent frame rate of 20 fps or better is more important than a photorealistic view out the window.

As you can see, you can crank up the display settings to ultrahigh and get beautiful pictures at the expense of smooth flying.

One slick feature of FSX is that you can save and load different display settings so that you can change quickly between them. To save the default settings for your machine, click the Save button on the Settings page. Name this file **default settings**, and click OK. Now take the setting sliders, and move them all one click to the right—that is, if your graphics setting was set to Medium, it'll now be set to Medium High—and click the Save button again. Save this configuration as **prettier**. From this point forward, every time you run FSX, you'll get that higher level of visual display. Now reset the settings to their defaults by clicking the Reset Defaults button on the same page. After you return the settings to their defaults, slide each of the five sliders one notch to the left so they're at a lower quality. Save this configuration as well, calling it **faster**. Click Reset Defaults again to return to the default settings.

Now you have three display configurations to play with as you get flying in Chapter 2. We'll start you out flying the default settings as set by FSX. If the performance isn't good enough for you, return to this window, click Load, and choose the faster configuration. If your computer seems to handle FSX with aplomb, return to this window, load the prettier settings, and see how it does.

We won't talk much more about adjusting the settings, but you should certainly feel free to experiment with them all you like.

ORGANIZING YOUR COCKPIT



Figure 1-6: Make sure your cockpit is a comfortable space for the controls and for the printed versions of checklists, charts, and any other documents you regularly use.

An organized cockpit also means getting all of those flight controls (yoke, rudder pedals, and headset) in a position where they're comfortable for you to use for at least an hour at a time (see Figure 1-6). No sense investing in all that stuff if it's just going to annoy you when you try to use it.

Finally, consider a "Do Not Disturb" sign for the door, turn off your cell phone before flight, and close your email program. It's part of the flight instructor's job to introduce what the FAA calls *realistic distractions*, but having your spouse call you for dinner doesn't count as one of them.

Cockpit organization is something your flight instructor will talk about, particularly in instrument training. Keeping a well-organized cockpit can mean the difference between having a key chart immediately at hand or having to crane around backward reaching under the seat with one hand while trying to fly through turbulence with the other.

The seat in front of your computer shouldn't be bouncing around in turbulence (unless you live in Southern California), but setting up your cockpit in a realistic way will both improve your training and give you the most realistic flight experience. This includes having real, printed versions of your checklists available and the appropriate physical charts for the flight.

KEY FLIGHT SIM COMMANDS

One of the unavoidable frustrations of the simulator is that it's, well, a simulator. There are plenty of things you would just do in an airplane, such as turn your head to the left to get a good look at the runway or such as reach down with your hand to retract the gear. You have to use the keyboard, mouse, or buttons on your joystick to do this in FSX. The way to make this the least disruptive is to know the key commands for commonly used actions and customize buttons on your joystick or yoke to do exactly what you want them to do.

You can see a complete list of the commands in FSX by viewing your kneeboard—F10 on your keyboard—but we'll get you going with a few you should commit to memory.

ESSENTIAL BASIC COMMANDS

Esc ends your current flight. By default, FSX will verify that this is what you really want to do.

P pauses the simulation. Press P again to resume flying.

Alt reveals all the menus when working in full-screen mode.

Alt+Enter toggles between full-screen mode, where FSX takes up your complete monitor, and window mode, where FSX runs in a window just like any other program. Pressing Alt+Enter twice will get rid of the menus at the top of the screen.

The period key will apply your brakes if you don't have rudder pedals with built-in brakes.

ESSENTIAL VIEW COMMANDS

One of the biggest limitations with FSX, or any flight simulator that uses only one screen, is that you have no peripheral vision. Peripheral vision is essential for lining yourself up with the runway and landing the airplane. You get around this in FSX by using different views. To do this efficiently, you need to know how to use the hat switch on your joystick or yoke to look around the cockpit. You'll practice this in the next chapter.

FSX actually has two cockpit views: the normal cockpit view (see the left of Figure 1-7) and the virtual cockpit view (see the right of Figure 1-7). The virtual cockpit view allows you to smoothly look around the cockpit. On a high-end computer like one of our loaners, the effect is amazingly realistic. If you use it, however, you'll need to be able to change the eye point. This sets how high or low in the cockpit your virtual chair sits, as well as how far back from the instrument panel. The farther back from the instrument panel, the more peripheral vision you have—and the more realistic the view—but the more difficult it is to read the instruments.

Ctrl+Enter moves your eye point away from the instrument panel toward the back of the airplane.

Ctrl+Backspace moves your eye point forward toward the instrument panel.

Shift+Backspace moves your eye point down as if you were slouching in your seat.

Shift+Enter moves your eye point up as if you were sitting up straight, just like your mother always told you to do.

Ctrl+spacebar resets the virtual cockpit view both for your eye point and for looking straight ahead. This is an essential command because often you'll use the hat switch to take a look to your right or left and perhaps slightly up or down and then need to swing your virtual head back around to look out front windscreens of the airplane.



Figure 1-7: One of the biggest choices in FSX is when you'll use the 2D normal cockpit or the 3D virtual cockpit. It's helpful to toggle quickly between the two by pressing F9 and F10.

The normal cockpit view, also known as the 2D view, is limited to eight views inside the cockpit. The views are broken into 45-degree segments. The default view is straight ahead with an option to look 45° ahead and right, 90° right, 135° rear and right, and so on. The normal cockpit view snaps back to the straight-ahead perspective every time you let go of the hat switch, so you don't need to press Ctrl+spacebar to reset the view. The normal cockpit doesn't let you change your eye point either.

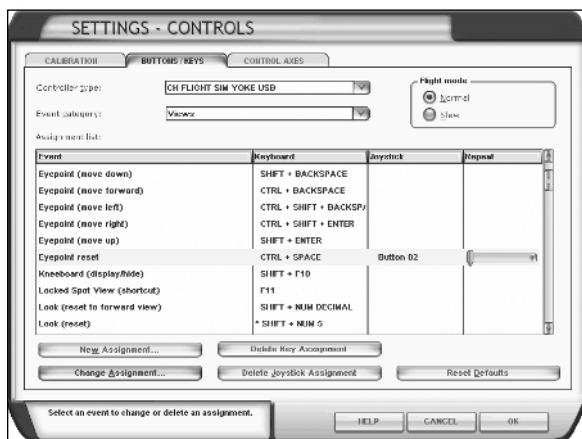


Figure 1-8: When you have a sense of which commands you'll use on a regular basis, make sure they're easy to execute by giving them a simple keyboard shortcut or assigning them to a button on your joystick.

In the normal cockpit view, it can be hard to look over the nose of the aircraft. So, pressing W on the keyboard gets rid of most of the panel, leaving you just a few key instruments. Pressing W again will remove all the instruments, and pressing W a third time will bring back the whole cockpit.

Pressing F10 on your keyboard will give you the normal, 2D cockpit at any time.

Pressing F9 on your keyboard will give you the virtual cockpit.

Knowing the commands is one thing, but hitting them on the keyboard in the heat of battle is something else. We strongly encourage you to customize the buttons on your yoke or joystick so that the commands you want are one simple click away. For example, if you use virtual cockpit regularly, you can customize one of the buttons near the hat switch to be the same as Ctrl+spacebar. That way, you can look around the virtual world yet easily snap back to a forward view.

You customize buttons from the Settings page of FSX. Click the Controls button, and then click the Buttons/Keys tab. This lists all the key commands in FSX and any joystick buttons that are assigned to those commands (see Figure 1-8). Select the command you want to assign to your joystick, and click Change Assignment. That'll open a new window where you can click the button on your joystick and assign it to the command.

USE OF SLEW FOR PRACTICE

One of the huge advantages of working with the simulator is that you can pick up the airplane and move it anywhere in space and time. You can do this three ways: by starting a simulation at a particular point, by changing position on the World > Map menu, and by using something called *slew*. Slew allows you to fly the airplane to anywhere in the virtual world at hundreds of miles per hour or twisted into any position you like while it hovers motionless in the air. It takes a bit of practice to learn how to use slew well, so much so that has its own appendix in this book. Throughout the book, we might refer to slewing the airplane into a particular position. If you want to learn how to use slew, check out Appendix B.

USING THE FSX BUILT-IN FLIGHT LESSONS

FSX includes many built-in flight lessons hosted by Rod Machado. Rod is practically a living legend as a flight instructor and humorist. We'd love to have the opportunity to fly with him, and we're sure we'd learn a lot. We encourage you to use his lessons as a supplement to the lessons in this book.

But these lessons don't go far enough, in our opinion, if you want to become a real pilot or if you want your virtual pilot training to be as realistic as possible. They also contain a few pitfalls.

One of the issues we've noticed working with students who have a lot of flight simulator time before they transition to a real airplane is that they spent too much time with their heads down in the cockpit looking at the flight instruments. In a flight simulator, this makes a lot of sense because no matter how realistic the view is on the screen, you still lack all of the peripheral vision, as well as tactile cues about what the airplane is doing. Many of the built-in flight lessons rely heavily on the instruments for this reason. But in real airplanes when you're not flying in a cloud, you need to spend most of your time looking outside the airplane.

That's actually why you're starting your training in this book with the Piper J-3 Cub instead of the Cessna 172. The Cub has few instruments, so there's not much to look at. Our goal is to get more of the sight picture in your brain and lay the groundwork for looking outside the airplane, even though that's actually more difficult to do on a computer than just flying on instruments.

Getting to know the Cub could have a secondary benefit if you choose to continue on to real aircraft. The FAA recently approved the Sport Pilot Certificate, giving students the option of learning to fly in a smaller, less expensive, and simpler airplane such as the Cub. The FAA requires only 20 hours of flight time to get a Sport Pilot Certificate, whereas you need 40 hours to get a Private Pilot Certificate. The Cessna 172 is too big and fast to be legally flown by someone who has only a Sport Pilot Certificate.

By contrast, the Instrument Rating lessons in FSX are done in the Cessna 172. This is probably the most common airplane for instrument training in the real world—because it's fairly inexpensive as instrument-capable airplanes go—

but it's not the airplane that a lot of instrument pilots end up flying. Cost is not a factor in flight simulators, so we take you directly to the Mooney Bravo. This is a serious, cross-country airplane and a great trainer for both doing instrument training and working with complex, high-performance aircraft.

SELECTING A REAL-WORLD FLIGHT SCHOOL

If you decide to pursue real-world flight training, you might be surprised by how much information you need in order to make a good decision about a flight school. A bad decision could be costly in money, time, or even safety, so take your time, and check out as many schools as you can to find one that will work for you. In fact, when we meet prospective flight students, we encourage them to go check out several flight schools in the area to find the one that fits them best. (Of course, we hope that after shopping around they come back to us.)

AIRCRAFT TYPES

Find a flight school that has the kind of airplanes you want to fly. FSX and this book give you opportunities to try many kinds of airplanes, and you might decide you want to learn for real in one type. But be open to trying several kinds, because flight simulators cannot show you how it feels to actually sit in an aircraft.

For instance, the real Cessna 172 is only 39 inches wide. If you're a big person and your flight instructor is as well, it can be a tight fit. A Diamond DA20 has a cabin that's a full 5 inches wider. On the other hand, sometimes Flight Simulator does an excellent job of simulating reality. It's hard to see out of the FSX version of the Cub while sitting on the ground. In a real Cub, the student sits in the back, and the view is...just about as bad.

ENVIRONMENT

Some flight schools are set up only to do flight training—they do it well, and they do it thoroughly, but when you're done training, they won't let you rent a plane for fun. Some schools allow you to rent the plane after you're done training, but they don't offer much support for the recreational flyer. If you want to push through your training and become a professional pilot as quickly and cheaply as possible, this might be fine.

Contrast that with a *flying club*, which is much more about recreational flying. Members of the club might actually own shares of the planes or share some other expenses. Some flying clubs are really just private companies. Regardless, a flying club is usually designed to provide events and activities to help pilots keep flying after they get their certificates.

INSTRUCTOR

In our opinion, the number-one determinant for your success as a prospective pilot is your relationship with your flight instructor (usually called a *certified flight instructor*, or CFI, in the United States). When checking out different flight schools, arrange to fly one or two flights with several different CFIs—even at the same flight school—to find out which instructor has the style that lets you learn best.

Try to find a CFI who is at least somewhat familiar with FSX or similar types of flight simulators. It will speed up your training a lot if your CFI can describe what goals and maneuvers will be taught in your next lesson and how you can practice them in FSX before the lesson.



Figure 1-9: Your relationship with your instructor is the single most important factor in your success as a student pilot. Take the time to find the person who is right for you.

learned it. Use your judgment as to whether someone is working hard to help you or is just along for the ride.

In the end, the most important factor is whether you will be comfortable with the CFI and get along well enough that you can learn (see Figure 1-9). If you don't have to think about any challenges in your relationship with your CFI, you'll be able to concentrate on learning to fly, which is plenty of a challenge in itself!

Some folks will warn you against flying with younger instructors who are just “building time” toward an airline career. Although some young instructors might be bound for the airlines, that doesn't mean they won't do a good job on your training; in fact, they might better remember their aviation knowledge because they just

COSTS

Why is flying so expensive? Well, it's expensive for a couple reasons. The airplanes are expensive to own and operate. Insurance and maintenance costs are often 10 times as high as comparable prices for your car. Fuel is expensive, costing about \$4.50 a gallon in the United States at the time of this writing, and much more in Europe and elsewhere. But even if all that wasn't true, moving a heavy mass through the air takes a lot of energy. And no matter how you slice it, energy costs money to use. The following sections contain some of the details to help you keep the cost from getting out of control.

AIRCRAFT RENTAL

Most flight schools charge by each 10th of the hour the engine is running, based on a special clock in the airplane called a *Hobbs meter*. If you use the logbook feature in FSX, you'll notice it measures your time in 10ths of hours, too, although it starts counting as soon as you start a flight even if the engine is stopped. Some schools charge a *wet* rate; that is, fuel is included in the rental fee. Others charge a *dry* rate, in which case you pay for the fuel you burn during the flight on top of the rental fee. Be sure to ask which rate the school uses so you can compare this correctly with other schools.

INSTRUCTOR

Just like the airplane, you'll probably pay for your CFI's time teaching in the airplane based on the Hobbs meter.

One big difference between flight schools has to do with how they charge for ground instruction. Before each flight, it's helpful to go over the plan for the flight with your instructor; this gives you a chance to understand the goals and activities for the flight and gives your instructor a chance to make sure you understand the theoretical concepts and procedures the flight will include. Some schools charge for this ground time, and others do not. The latter might seem like a great deal, but it has a hidden pitfall.

If the flight school doesn't pay the instructor for this time, the instructor is likely to shorten or skip this preflight discussion. You'll pay for this when it takes you longer to learn techniques in the air, where both the instructor and the airplane clocks are ticking the dollars away. Airplanes also make lousy classrooms for theoretical concepts or discussions. Your own studying, including FSX and this book, will help prepare you for your lessons so you can be more efficient during your training time, but be sure you and your instructor allow time before the flight as well.

INSURANCE

Airplanes are expensive, and if you bend one during your training, someone is going to have to pay for it. The flight school almost certainly has enough insurance to get the airplane repaired and flying again, but it's possible that the school will ask you to pay the deductible. Deductibles can be substantial on airplanes, sometimes in excess of \$10,000.

The sad fact is that we live in a litigious society. When airplane accidents happen, there is often more damage (and more liability and lawsuits) than just repairs to the airplane. It's possible the insurance company that covers the flight school and the airplane doesn't cover you against liability claims resulting from an accident. It's even possible, although rarer, for an insurance policy to allow the insurance company to pay the flight school to repair the airplane but then sue you as the pilot for that amount.

Be sure to find out exactly what kind of insurance the flight school offers, and consider getting some supplementary insurance of your own. Many agencies offer this kind of insurance, which is technically liability insurance, for renter pilots. The Airplane Owners and Pilots Association (AOPA) website has some excellent information about renter's insurance.

INTRODUCTORY FLIGHT

Most flight schools allow you to take an introductory flight for a much lower price than their usual hourly rate, as a way of getting you in the door. Many flight schools participate in the Be a Pilot program (www.beapilot.com), where you can print a coupon for an introductory flight at a reduced price.

The introductory flight can be a real flight lesson, so make it clear you want a lesson and not just a sightseeing flight. Ask to log the time in your logbook so that it will count toward your total, required flying time. However, be aware that in our post-9/11 world, you'll probably need to bring proof of citizenship and a government ID to log the training. If you don't have (or don't want to bring) such proof, you can take the flight, but you can't log the flight time, and it won't count toward total flight time.

We strongly encourage you to take advantage of introductory flights at as many flight schools as you can, even ones that you know you're not interested in (because of distance, cost, or whatever). You'll be able to get an even better idea of what you look for in a school, and you'll spend time with many different instructors and learn what kind of person meets your needs for training.

When you visit a flight school to take an introductory flight, ask for a tour of the facilities. You can learn a lot about a school by seeing the maintenance facility (if it has one), looking at all the types of aircraft available (and their quality), and getting a sense of the culture or environment of the school. Talking to pilots who learned to fly there is an excellent idea too. That said, realize that airplanes, unlike cars, undergo stringent inspections at a minimum of every year. Just because an airplane looks a little rough around the edges doesn't mean that it's unsafe.

WORKING WITH YOUR FLIGHT INSTRUCTOR

A good CFI knows that students need to be prepared for each flight lesson by studying and discussing the procedures and maneuvers they will practice during the flight. Students do not learn as well when they hear about a maneuver for the first time in the air.

Using FSX as part of your real-world training is a great way to prepare for each lesson. At the end of a lesson, ask your CFI what maneuvers or procedures you will be doing in the next lesson. Then grab this book, boot up FSX, and find the lessons that we've set up. After you've practiced several times in the simulator, the real flight will be much easier, and you'll be able to concentrate on controlling the actual airplane, rather than trying to remember what the maneuver was all about. Feel free to change the airplane in our lesson to better match the one you're actually using for flight training.

FSX AS PART OF A LESSON

If you are working with a CFI, let them know you have Flight Simulator and can use it as part of your training. Ask them whether they can give you tasks or scenarios to fly that correspond to your next flight lesson. Heck, give them a copy of this book. At the least, find out what you'll be doing on your next flight lesson, and try it in FSX on your own.



Figure 1-10: Find an instructor who will work with you on FSX as well.

posed to be about crosswind landings but the wind is calm that day, you won't learn the necessary skills for adapting to the crosswind. Instead, you or your CFI can use the crosswind lesson from this book (but this time you have a live CFI coaching you), and then in the real flight, you can practice other parts of landings.

SHARED COCKPIT

Flight Simulator used to have something called a *flight instructor station*, which allowed two computers to connect to each other and allowed the instructor to manipulate your Flight Simulator from a different computer. New in FSX is the ability for two pilots running FSX on separate machines to actually *sit* in the same airplane. Originally designed for the two-cockpit crews of virtual airlines, this is a great way to have a flight lesson. Again, connected through the Internet, your CFI can sit in the right seat and can demonstrate maneuvers and procedures for you and then watch your performance as you practice. This will also be detailed in Chapter 25, but you can start thinking about it now and talk to your CFI about incorporating this into your training. For instance, on a day when the weather isn't good enough for a real flight, see whether you can have a flight lesson while you're on your own computer and your CFI is at the airport (or at home) using their FSX, saving you a trip to the airport but still getting in a good lesson.

We wouldn't be surprised if in the not-too-distant future CFIs will start offering their services online to students anywhere in the world.

Consider hiring them for some *ground instruction* time, and have them teach you the lesson in FSX before you go out in the real plane (Figure 1-10). This training method has two advantages: you can practice difficult parts over and over without the extra time (and money) flying the plane out to the practice area and back, and the instructor can set up scenarios that increase your skills in ways that the real world might not allow.

For example, in Chapter 3, you'll learn how to land when there is a crosswind on the runway—that is, the wind is blowing from the side instead of straight down the runway. If your real-world lesson is sup-

USING THE PRACTICAL TEST STANDARDS



Figure 1-11: You can buy a commercial copy of the PTS, or you can download them in PDF from the FAA.

Real-world pilot training preparing you for a new pilot certificate or rating culminates with a *checkride*, a ground and flight test with an FAA-designated examiner or FAA employee. Pass the checkride, and you're the proud owner of a new pilot's certificate. When you're ready for your checkride, the examiner will use the appropriate Practical Test Standards (PTS) for that pilot certificate as a guide for the checkride. For instance, the first pilot certificate this book will train you for is the Sport Pilot Certificate (see Figure 1-11). If you want to see what a Sport Pilot Practical Test will include and what standards you'll be required to demonstrate to the examiner, check out the Sport Pilot Practical Test Standards PDF file on the accompanying website at www.wiley.com. The FAA updates the PTS regularly, so go to the following FAA website for the latest versions: www.faa.gov/education_research/testing/airmen/test_standards/.

In this book, we will train you using the standards set out in the PTS. For example, on page 1-23 (PDF page 57) of the Sport Pilot PTS, it says that you will be asked to perform steep turns at a 45-degree bank, maintaining the entry altitude ± 100 feet, airspeed ± 10 knots, bank $\pm 5^\circ$, and several other parameters. By studying the PTS and practicing in FSX (and, more important, in the real airplane) to the standards set out in the PTS, your checkride will have few surprises, and you'll be able to tell how you're doing all the way through.



STUDENT OF THE CRAFT

AVIATION ON THE INTERNET

Whole books have been written about how to get aviation information on the Internet and connect with other pilots. Rather than repeat what you can get elsewhere, here is a brief summary of the websites we've found most useful in our real-world and sim flying:

FAA: www.faa.gov

The FAA has gone seriously digital, with all kinds of documents, training manuals, and more available online. We've included a lot of the pertinent ones on the website that accompanies this book, but the FAA updates its documents frequently, so you'll want to check its website for the latest.

Weather: aviationweather.gov

It's not enough to know it's going to be partly cloudy with a high of 85° today. You need to know how high those clouds are, whether that hot temperature comes with high humidity, and, thus, where the thunderstorms are popping up. Be sure to check out the Java tools on this website as well. They're some of the coolest free tools you'll find on the Web for weather.

Continued

Live Weather Radar: www.wunderground.com

The weather underground isn't such an amazing site for aviation weather, but it does have the best up-to-the-minute weather radar available for free. You can also get it on your cell phone at mobile.wunderground.com.

Visual Flying Charts: skyvector.com

The best maps, or charts, to have for visual flying are usually sectional charts. Free sectional charts for the entire United States, as well as terminal area charts that show busy airspace in greater detail, are available here.

Instrument Approach Plates: naco.faa.gov/index.asp?xml=naco/online/d_tpp
When you get into instrument flying, you'll start using approach plates. All the approach plates for the United States are available online in PDF. This database is updated every 56 days.

Organizations: www.aopa.org

The AOPA maintains an extensive website that's of interest to anyone excited about aviation. The AOPA also does extensive lobbying on behalf of pilots and puts out a great magazine. You might consider joining the organization if all your flying will be online.

Experimental Aircraft Association: www.eaa.org

Known even outside aviation circles for hosting the annual AirVenture pilgrimage to Oshkosh, Wisconsin, the Experimental Aircraft Association (EAA) got its start as a club for people who build their own airplanes. Now it is a home for pilots and wanna-be pilots of all types.

Sim Flying: www.avsim.com and www.flightsim.com

AVSIM Online is one of the best-known flight simulator websites around. FlightSim.com is one of the oldest. Many, many others exist, but if you start with one, you can usually find your way to the rest.

Virtual Air Traffic Simulation: www.vatsim.net

VATSIM is probably the biggest of several systems that flight simmers can connect to in multiplayer mode and fly with other pilots. Unlike the GameSpy Network built into FSX, VATSIM can accommodate thousands of pilots and hundreds of sim air traffic controllers all in the same virtual world.

Flight Aware: flightaware.com

This site includes real-time display of all flights tracked by air traffic control nationwide. It includes both commercial and private aviation.

PLUGGING IN TO PILOT COMMUNITIES

When Microsoft added multiplayer capabilities to Flight Simulator almost a decade ago, the opportunities for connecting with other like-minded sim pilots exploded. Part Six of this book will cover multiplayer opportunities in detail, but here are some examples to show you the capabilities of FSX:

- Sponsor a virtual *fly-in* where sim pilots, connected to one server, all fly to a single airport and watch each other take off and land and even perform an air show. (Virtual \$100 hamburgers don't taste as good as the real thing, though.)
- Fly as a two-pilot crew in the cockpit, each with specific duties to perform during the flight.
- Join a virtual airline, using custom paint on FSX airliners, and fly into and out of your airline's hubs.
- Connect to one of several virtual air traffic networks, where both sim pilots and sim air traffic controllers are on duty and with voice communication that sounds just like the real thing. (When your virtual air traffic controller sends your virtual airplane into the virtual mountain killing all 200 virtual passengers, please use only virtual lawyers for your virtual lawsuit.)

New real-world pilots tell us that, besides the skills of flying itself, they are most nervous about using the radio and not sounding silly or ignorant. As the online communities grow and more people learn about flying, the realism of voice communication increases, and students can practice their radio techniques in the safety and anonymity of the virtual world.

The best place to find real pilots is usually at an airport. If you like things that fly, spend a little time hanging out at some of your local airports. You'll meet all sorts of interesting people. Also, quite a few real-world pilot communities meet online, and some online resources can help you find real pilots.

AVSIG (www.avsig.com) started as a computer bulletin board system back in the pre-Internet days and still is a popular aviation message forum. You can post a question or comment and get quick responses from a variety of aviation professionals within hours.

The CFI.com (www.thecfi.com) is technically a website for CFIs, but since the users are also instructors, they're receptive to student questions. It's a great place to lurk and learn stuff as well.

Your local EAA chapter is a great place to meet people enthusiastic about aviation. You can find out more about the EEA at its website, www.eaa.org.

The FAA offers monthly safety seminars in many cities, and all are welcome to come—pilots, sim pilots, and non-pilots alike. Register at www faasafety gov.

Pilots Share the Ride (www.pilotsharetheride.com) is a website primarily for pilots, but it's really a way for people to share expenses when traveling in small aircraft. Who knows? You might end up getting a ride with someone heading to a common destination, such as an air show.

Angel Flight is an organization that donates travel in small aircraft for people with medical needs and limited resources (www.angelflight.org). The organization strongly encourages people to sign up to be mission assistants to help both the pilot and the passengers have a smooth and enjoyable trip. These assistants don't have to be pilots, and you don't have to be a real-world pilot to join Angel Flight.

KEY POINTS FOR REAL FLYING AND FSX BUILT-INS

The following are some key points from this chapter that apply to flight sim flying and real-world flying:

- Take the time to set up your hardware and software to work best for your needs. This might mean investing in some new equipment.
- Take the time to find the best flight school and the instructor who works best for you, for either real-world or virtual training.
- Use your online communities to get help and answer questions. Those forums are full of enthusiasts just like you.